

sequence1ist-21408.ST25
SEQUENCE LISTING

<110> Roche Vitamins AG

<120> Enone reductase gene

<130> NDR5231

<160> 30

<170> PatentIn version 3.1

<210> 1

<211> 1212

<212> DNA

<213> Candida kefyr

<220>

<221> CDS

<222> (1)..(1212)

<223>

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ttc	aag	cca	atc	aag	atc	ggt	aac	aat	gag	cta	aaa	cac	aga	gta	gtc	96
Phe	Lys	Pro	Ile	Lys	Ile	Gly	Asn	Asn	Glu	Leu	Lys	His	Arg	Val	Val	
		20					25					30				

atg	cca	gca	ttg	act	aga	atg	aga	gcc	att	gca	cca	gga	aac	atc	cca	144
Met	Pro	Ala	Leu	Thr	Arg	Met	Arg	Ala	Ile	Ala	Pro	Gly	Asn	Ile	Pro	
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aac	act	gaa	tgg	gcc	gag	gaa	tac	tac	aga	caa	cgt	tct	caa	tac	cct	192
Asn	Thr	Glu	Trp	Ala	Glu	Glu	Tyr	Tyr	Arg	Gln	Arg	Ser	Gln	Tyr	Pro	
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ggt	acc	ctt	att	atc	acg	gaa	ggt	act	ttc	cct	tct	gcg	caa	tca	ggt	240
Gly	Thr	Leu	Ile	Ile	Thr	Glu	Gly	Thr	Phe	Pro	Ser	Ala	Gln	Ser	Gly	
65				70					75					80		

ggt	tac	cca	aat	gtg	cca	ggt	atc	tgg	tcc	aaa	gag	caa	ttg	gct	gaa	288
Gly	Tyr	Pro	Asn	Val	Pro	Gly	Ile	Trp	Ser	Lys	Glu	Gln	Leu	Ala	Glu	
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tgg Trp	aaa Lys	aag Lys	atc Ile 100	ttc Phe	aat Asn	gca Ala	atc Ile 105	cat His	gag Glu	aac Asn	aaa Lys	tcg Ser	ttc Phe 110	gtg Val	tgg Trp	336
gtg Val	caa Gln	ttg Leu 115	tgg Trp	gtt Val	cta Leu	ggg Gly	aga Arg 120	caa Gln	gca Ala	tgg Trp	cca Pro	gaa Glu 125	gtg Val	ttg Leu	aag Lys	384
aag Lys	gaa Glu 130	ggg Gly	ttg Leu	cgt Arg	tac Tyr	gat Asp 135	agt Ser	gct Ala	acc Thr	gat Asp	gac Asp 140	ttg Leu	tac Tyr	atg Met	ggg Gly	432
gaa Glu 145	gaa Glu	gaa Glu	aaa Lys	gag Glu	cgt Arg 150	gcc Ala	tta Leu	aag Lys	gct Ala	aac Asn 155	aac Asn	cca Pro	cag Gln	cac His	ggg Gly 160	480
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gcc Ala	aag Lys	aaa Lys	gcc Ala 180	atc Ile	gat Asp	gca Ala	ggg Gly	gca Ala 185	gac Asp	ggg Gly	gtg Val	caa Gln	atc Ile 190	cat His	tct Ser	576
gcc Ala	aac Asn	ggg Gly 195	tac Tyr	ttg Leu	ttg Leu	aac Asn	cag Gln 200	ttt Phe	ttg Leu	gac Asp	cct Pro	att Ile 205	tct Ser	aac Asn	aac Asn	624
aga Arg	acc Thr 210	gac Asp	gag Glu	tac Tyr	ggg Gly 215	gga Gly	tcg Ser	atc Ile	gag Glu	aac Asn	cgt Arg 220	gcg Ala	aga Arg	ttc Phe	act Thr	672
ttg Leu 225	gaa Glu	gtg Val	gtc Val	gat Asp	gcc Ala 230	gtt Val	gtc Val	gat Asp	gca Ala	gtt Val 235	ggg Gly	gcc Ala	gaa Glu	aga Arg	acc Thr 240	720
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gaa Glu	aag Lys	aga Arg 275	gct Ala	aga Arg	gct Ala	ggc Gly	aag Lys 280	aga Arg	ttg Leu	gag Ala	ttc Phe	atc Ile 285	gat Asp	ttg Leu	gtc Val	864
gag Glu	cct Pro 290	cgt Arg	gtg Val	acc Thr	gac Asp	cca Pro 295	ttc Phe	cta Leu	cca Pro	gaa Glu	ttc Phe 300	gag Glu	aag Lys	tgg Trp	ttc Phe	912
aag Lys 305	gaa Glu	ggg Gly	acc Thr	aac Asn	gaa Glu 310	ttc Phe	atc Ile	tac Tyr	tct Ser	atc Ile 315	tgg Trp	aag Lys	ggg Gly	cca Pro	gtt Val 320	960
ctc Leu	aga Arg	gtt Val	ggg Gly 325	aac Asn	tat Tyr	gct Ala	ttg Leu	gac Asp	cca Pro 330	gat Asp	caa Gln	gcc Ala	act Thr	ctc Leu 335	gac Asp	1008
tct Ser	aag Lys	aag Lys	cct Pro 340	aac Asn	act Thr	ttg Leu	atc Ile	ggg Gly 345	tac Tyr	ggg Gly	aga Arg	tcc Ser	ttc Phe 350	atc Ile	gcc Ala	1056
aac Asn	cca Pro	gac Asp 355	ttg Leu	gtg Val	tac Tyr	cgt Arg	ttg Leu 360	gaa Glu	aag Lys	ggg Gly	ttg Leu	cca Pro 365	ttg Leu	aac Asn	aag Lys	1104

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370 375 380	
tac cca agc tac gaa gaa tcc gtc gca aag ggt tac aag aaa gag gaa	1200
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Lys Lys Tyr	

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<211> 403

<212> PRT

<213> Candida kefyr

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Met Pro Ala Leu Thr Arg Met Arg Ala Ile Ala Pro Gly Asn Ile Pro	
35 40 45	
Asn Thr Glu Trp Ala Glu Glu Tyr Tyr Arg Gln Arg Ser Gln Tyr Pro	
50 55 60	
Gly Thr Leu Ile Ile Thr Glu Gly Thr Phe Pro Ser Ala Gln Ser Gly	
65 70 75 80	
Gly Tyr Pro Asn Val Pro Gly Ile Trp Ser Lys Glu Gln Leu Ala Glu	
85 90 95	
Trp Lys Lys Ile Phe Asn Ala Ile His Glu Asn Lys Ser Phe Val Trp	
100 105 110	
Val Gln Leu Trp Val Leu Gly Arg Gln Ala Trp Pro Glu Val Leu Lys	
115 120 125	
Lys Glu Gly Leu Arg Tyr Asp Ser Ala Thr Asp Asp Leu Tyr Met Gly	
130 135 140	
Glu Glu Glu Lys Glu Arg Ala Leu Lys Ala Asn Asn Pro Gln His Gly	
145 150 155 160	
Ile Thr Lys Glu Glu Ile Lys Gln Tyr Ile Lys Glu Tyr Val Asp Ala	
165 170 175	

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Ala Lys Lys Ala Ile Asp Ala Gly Ala Asp Gly Val Gln Ile His Ser
 180 185 190
 Ala Asn Gly Tyr Leu Leu Asn Gln Phe Leu Asp Pro Ile Ser Asn Asn
 195 200 205
 Arg Thr Asp Glu Tyr Gly Gly Ser Ile Glu Asn Arg Ala Arg Phe Thr
 210 215 220
 Leu Glu Val Val Asp Ala Val Val Asp Ala Val Gly Ala Glu Arg Thr
 225 230 235 240
 Ser Ile Arg Phe Ser Pro Tyr Gly Thr Phe Gly Thr Met Ser Gly Gly
 245 250 255
 Glu Asn Pro Gly Ile Val Ala Gln Tyr Ala Tyr Val Ile Gly Glu Leu
 260 265 270
 Glu Lys Arg Ala Arg Ala Gly Lys Arg Leu Ala Phe Ile Asp Leu Val
 275 280 285
 Glu Pro Arg Val Thr Asp Pro Phe Leu Pro Glu Phe Glu Lys Trp Phe
 290 295 300
 Lys Glu Gly Thr Asn Glu Phe Ile Tyr Ser Ile Trp Lys Gly Pro Val
 305 310 315 320
 Leu Arg Val Gly Asn Tyr Ala Leu Asp Pro Asp Gln Ala Thr Leu Asp
 325 330 335
 Ser Lys Lys Pro Asn Thr Leu Ile Gly Tyr Gly Arg Ser Phe Ile Ala
 340 345 350
 Asn Pro Asp Leu Val Tyr Arg Leu Glu Lys Gly Leu Pro Leu Asn Lys
 355 360 365
 Tyr Asp Arg Asn Thr Phe Tyr Thr Phe Thr Lys Glu Gly Tyr Thr Asp
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 385 390 395 400
 Lys Lys Tyr

<210> 3

<211> 12

<212> PRT

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<213> Candida kefyr

<400> 3

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<211> 50

<212> PRT

<213> Candida kefyr

<400> 4

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Val Gln
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<210> 5

<211> 8

<212> PRT

<213> Candida kefyr

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Glu Gln Leu Ala Glu Trp Lys Lys
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<210> 6

<211> 9

<212> PRT

<213> Candida kefyr

<400> 6

Ile Phe Asn Ala Ile His Glu Asn Lys
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<210> 7

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<213> Candida kefyr

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<222> (15)..(15)

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<221> MISC_FEATURE

<222> (15)..(15)

<223> Xaa is unknown

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Glu Val

<210> 8

<211> 19

<212> PRT

<213> Candida kefyr

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Glu Glu Lys

<210> 9

<211> 10

<212> PRT

sequence1ist-21408.ST25

<213> Candida kefyr

<400> 9

Ala Asn Asn Pro Gln His Gly Ile Thr Lys
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<400> 10

Glu Tyr Val Asp Ala Ala Lys
1 5

<210> 11

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<222> (43)..(43)

<223> Xaa is unknown

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<222> (47)..(48)

<223> Xaa is unknown

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<222> (45)..(45)

<223> Xaa is unknown

<400> 11

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Tyr Leu Leu Asn Gln Phe Leu Asp Pro Ile Ser Asn Asn Arg Thr Asp
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Glu Tyr Gly Gly Ser Ile Ile Asn Arg Ala Xaa Phe Xaa Leu Xaa Xaa
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Val Asp
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<211> 22

<212> PRT

<213> Candida kefyr

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Arg Leu Ala Phe Ile Asp Leu Val Glu Pro Arg Val Thr Asp Pro Phe
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Leu Pro Glu Phe Glu Lys
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<211> 12

<212> PRT

<213> Candida kefyr

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Glu Gly Thr Asn Glu Phe Ile Tyr Ser Ile Trp Lys
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<210> 14

<211> 21

<212> PRT

<213> Candida kefyr

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Gly Pro Val Leu Arg Val Gly Asn Tyr Ala Leu Asp Pro Asp Gln Ala
 1 5 10 15

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Thr Leu Asp Ser Lys
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<210> 15

<211> 24

<212> PRT

<213> Candida kefyr

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1 5 10 15

Asp Leu Val Tyr Arg Leu Glu Lys
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<210> 16

<211> 6

<212> PRT

<213> Candida kefyr

<400> 16

Gly Leu Pro Leu Asn Lys
1 5

<210> 17

<211> 11

<212> PRT

<213> Candida kefyr

<400> 17

Tyr Asp Arg Asn Thr Phe Tyr Thr Phe Thr Lys
1 5 10

<210> 18

<211> 15

<212> PRT

<213> Candida kefyr

<400> 18

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Glu Gly Tyr Thr Asp Tyr Pro Ser Tyr Glu Glu Ser Val Ala Lys
 1 5 10 15

<210> 19

<211> 9

<212> PRT

<213> Artificial

<400> 19

Gly Asp Thr Asn Ile Phe Lys Pro Ile
 1 5

<210> 20

<211> 9

<212> PRT

<213> Artificial

<400> 20

Gly Glu Lys Thr Phe Thr Tyr Phe Thr
 1 5

<210> 21

<211> 1058

<212> DNA

<213> Candida kefyr

<220>

<221> CDS

<222> (1)..(1056)

<223>

<400> 21

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 1 5 10 15

gga aac atc cca aac act gaa tgg gcc gag gaa tac tac aga caa cgt 96
 Gly Asn Ile Pro Asn Thr Glu Trp Ala Glu Glu Tyr Tyr Arg Gln Arg
 20 25 30

tct caa tac cct ggt acc ctt att atc acg gaa ggt act ttc cct tct 144
 Ser Gln Tyr Pro Gly Thr Leu Ile Ile Thr Glu Gly Thr Phe Pro Ser
 35 40 45

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gcg Ala	caa Gln	tca Ser	ggt Gly	ggt Gly	tac Tyr	cca Pro	aat Asn	gtg Val	cca Pro	ggt Gly	atc Ile	tgg Trp	tcc Ser	aaa Lys	gag Glu	192
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caa Gln	ttg Leu	gct Ala	gaa Glu	tgg Trp	aaa Lys	aag Lys	atc Ile	ttc Phe	aat Asn	gca Ala	atc Ile	cat His	gag Glu	aac Asn	aaa Lys	240
65					70					75					80	
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				85					90					95		
gaa Glu	gtg Val	ttg Leu	aag Lys	aag Lys	gaa Glu	ggt Gly	ttg Leu	cgt Arg	tac Tyr	gat Asp	agt Ser	gct Ala	acc Thr	gat Asp	gac Asp	336
			100					105					110			
ttg Leu	tac Tyr	atg Met	ggt Gly	gaa Glu	gaa Glu	gaa Glu	aaa Lys	gag Glu	cgt Arg	gcc Ala	tta Leu	aag Lys	gct Ala	aac Asn	aac Asn	384
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cca Pro	cag Gln	cac His	ggt Gly	atc Ile	acc Thr	aag Lys	gaa Glu	gaa Glu	atc Ile	aag Lys	cag Gln	tac Tyr	atc Ile	aag Lys	gag Glu	432
	130					135					140					
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			180					185					190			
gcg Ala	aga Arg	ttc Phe	act Thr	ttg Leu	gaa Glu	gtg Val	gtt Val	gat Asp	gcc Ala	gtt Val	gta Val	gat Asp	gca Ala	gtt Val	ggt Gly	624
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gcc Ala	gaa Glu	aga Arg	acc Thr	tcc Ser	atc Ile	aga Arg	ttc Phe	tct Ser	cct Pro	tac Tyr	ggt Gly	act Thr	ttt Phe	ggt Gly	acc Thr	672
	210					215					220					
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	225				230					235					240	
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				245					250					255		
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			260					265					270			
gag Glu	aag Lys	tgg Trp	ttc Phe	aag Lys	gaa Glu	ggt Gly	acc Thr	aac Asn	gaa Glu	ttc Phe	atc Ile	tac Tyr	tct Ser	atc Ile	tgg Trp	864
		275					280					285				
aag Lys	ggt Gly	cca Pro	gtt Val	ctc Leu	aga Arg	gtt Val	ggt Gly	aac Asn	tat Tyr	gct Ala	ttg Leu	gac Asp	cca Pro	gat Asp	caa Gln	912
	290					295					300					
gct Ala	act Thr	atc Ile	gac Asp	tct Ser	aag Lys	aag Lys	cct Pro	aac Asn	acc Thr	ttg Leu	atc Ile	ggt Gly	tac Tyr	ggt Gly	aga Arg	960
305					310					315					320	

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Ser Phe Ile Ala Asn Pro Asp Leu Val Tyr Arg Leu Glu Lys Gly Leu
325 330 335

cca ttg aac aag tat gat aga aac acc ttc tac acc ttc acc aaa gag 1056
Pro Leu Asn Lys Tyr Asp Arg Asn Thr Phe Tyr Thr Phe Thr Lys Glu
340 345 350

gg 1058

<210> 22

<211> 352

<212> PRT

<213> candida kefir

<400> 22

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Ser Gln Tyr Pro Gly Thr Leu Ile Ile Thr Glu Gly Thr Phe Pro Ser
35 40 45

Ala Gln Ser Gly Gly Tyr Pro Asn Val Pro Gly Ile Trp Ser Lys Glu
50 55 60

Gln Leu Ala Glu Trp Lys Lys Ile Phe Asn Ala Ile His Glu Asn Lys
65 70 75 80

Ser Phe Val Trp Val Gln Leu Trp Val Leu Gly Arg Gln Ala Trp Pro
85 90 95

Glu Val Leu Lys Lys Glu Gly Leu Arg Tyr Asp Ser Ala Thr Asp Asp
100 105 110

Leu Tyr Met Gly Glu Glu Glu Lys Glu Arg Ala Leu Lys Ala Asn Asn
115 120 125

Pro Gln His Gly Ile Thr Lys Glu Glu Ile Lys Gln Tyr Ile Lys Glu
130 135 140

Tyr Val Asp Ala Ala Lys Lys Ala Ile Asp Ala Gly Ala Asp Gly Val
145 150 155 160

Gln Ile His Ser Ala Asn Gly Tyr Leu Leu Asn Gln Phe Leu Asp Pro
165 170 175

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Ile Ser Asn Asn Arg Thr Asp Glu Tyr Gly Gly Ser Ile Glu Asn Arg
 180 185 190

Ala Arg Phe Thr Leu Glu Val Val Asp Ala Val Val Asp Ala Val Gly
 195 200 205

Ala Glu Arg Thr Ser Ile Arg Phe Ser Pro Tyr Gly Thr Phe Gly Thr
 210 215 220

Met Ser Gly Gly Glu Asn Pro Gly Ile Val Ala Gln Tyr Ala Tyr Val
 225 230 235 240

Ile Gly Glu Leu Glu Lys Arg Ala Arg Ala Gly Lys Arg Leu Ala Phe
 245 250 255

Ile Asp Leu Val Glu Pro Arg Val Thr Asp Pro Phe Leu Pro Glu Phe
 260 265 270

Glu Lys Trp Phe Lys Glu Gly Thr Asn Glu Phe Ile Tyr Ser Ile Trp
 275 280 285

Lys Gly Pro Val Leu Arg Val Gly Asn Tyr Ala Leu Asp Pro Asp Gln
 290 295 300

Ala Thr Ile Asp Ser Lys Lys Pro Asn Thr Leu Ile Gly Tyr Gly Arg
 305 310 315 320

Ser Phe Ile Ala Asn Pro Asp Leu Val Tyr Arg Leu Glu Lys Gly Leu
 325 330 335

Pro Leu Asn Lys Tyr Asp Arg Asn Thr Phe Tyr Thr Phe Thr Lys Glu
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<210> 23

<211> 25

<212> DNA

<213> Artificial

<400> 23

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<210> 24

<211> 26

<212> DNA

<213> Artificial

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<210> 25
 <211> 1796
 <212> DNA
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<400> 25
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atacattatt aaattaacct atgaatttat aaaataaaaag agataaaaata aaattaaaaa	1680
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<210> 26

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<212> DNA

<213> Artificial

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<210> 28

<211> 1310

<212> DNA

<213> Candida kefyr

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